

Aero Design Ltd.**Work Order Control Sheet**Work Order#: 2017-53 Date Opened: 27-Mar-17 Title: AssemblyAircraft OEM: Bell Aircraft Model: 212 Product Type: Rappel Bar Product Model: N/A Quantity: 1 LH/1RH**Work Order Contents**

	Initial or N/A
Work Order/Build Sheets (Procedures Provided)	JC
Additional Work Sheets (Standard Practice)	N/A
Drawings (See List Below)	JC
Parts Distribution Sheet	JC
Sub Component Tags	JC
Completed Certification (Original)	JC
Time Sheet (R&D)	N/A
Notes	N/A

Build Sheet Contents

	Initial or N/A
Tasks Initialled	JC
Dual Inspections Initialled	JC

Drawing List

Drawing #	Rev #	Description	Initial or N/A
75801	2	Rappel Mount Install'n	JC
75820	2	Rappel Mount Ass'y	JC

Traveller

Initial or N/A

Component Completion

	As Instructed
Quantity Complete on This Work Order	1 / 1
Quantity Incomplete on This Work Order	N/A
Further Processing Required Before Release	N/A
Release to Stock as Components	N/A

Certification

	Initial or N/A
Form One Completed	JC
Serviceable (Green) Tag Completed	N/A
In Process (Yellow) Tag Completed	N/A
Unserviceable (Red) Tag Completed	N/A
Parts Placed in Stores for Distribution	N/A

Additional Documentation

	Initial or N/A
Documentation of a minor change	N/A
Non-Conformance Report Required	N/A
Service Difficulty Report Required	N/A

Billing

	Initial or N/A
Local (Aero Design)	JC
Research and Development	N/A
Third Party	N/A

Work performed by:

Print: J. Clarke

Sign: 

SCA: AD02

Date: 29-Mar-17

ICC / Dual Inspection performed by:

Print: J. Rekve

Sign: 

SCA: AD01

Date: 29-Mar-17

Work Order closed by:

Print: J. Clarke

Sign: 

SCA: AD02

Date: 30-Mar-17

Approved Manufacturing Facility 73-04

Form 20.0.03

Rev. Original 23 Sep 2014



Aero Design Ltd.

9888 A Malaspina Rd., Powell River, BC
V8A 0G3, 604-483-AERO (2376)

Quantity: 1

PN: 75826-01

Aircraft: All

Model: All

Description: Plug

Supplier: Aero Design Ltd.

Color: N/A

WO#: 2015-83

PO# N/A

3/8-24 HELICOIL 3591-6CN562 15042

5/16-24 HELICOIL 3591-5CN625 12029

INSTALLED 29 MAR 2017 JC.



Aero Design Ltd.

9888 A Malaspina Rd., Powell River, BC
V8A 0G3, 604-483-AERO (2376)

Quantity: 1

PN: 75826-01

Aircraft: All

Model: All

Description: Plug

Supplier: Aero Design Ltd.

Color: N/A

WO#: 2015-83

PO# N/A



INSTITUTION 29 MAR 2017 g

5/16-24 HCU Cell 3591-5CNS625
12029

3/8-24 HCU Cell 3591-6CNS625
15042



Aero Design Ltd.

9888 A Malaspina Rd., Powell River, BC
V8A 0G3, 604-483-AERO (2376)

Quantity: 1

PN: 75825-01

Aircraft: Bell

Model: 205/212/412

Description: Plug, Guide

Supplier: Aero Design

Color: Black

WO#: 2014-51

PO# N/A



Aero Design Ltd.

9888 A Malaspina Rd., Powell River, BC
V8A 0G3, 604-483-AERO (2376)

Quantity: 1
PN: 75825-01
Aircraft: Bell
Description: Plug, Guide
Supplier: Aero Design
Color: Black
WO#: 2014-51

Model: 205/212/412

PO# N/A





Aero Design Ltd.

9888 A Malaspina Rd., Powell River, BC
V8A 0G3, 604-483-AERO (2376)

Quantity: 1
PN: 75822-01
Aircraft: All
Description: Ring Half
Supplier: Aero Design Ltd.
Color: N/A
WO#: 2015-83

Model: All

PO# N/A

HELICOIL INSTALLED. 29 MAR 2017 KUE
HELICOIL P.O. 12021



Aero Design Ltd.

9888 A Malaspina Rd., Powell River, BC
V8A 0G3, 604-483-AERO (2376)

Quantity: 1

PN: 75822-01

Aircraft: All

Model: All

Description: Ring Half

Supplier: Aero Design Ltd.

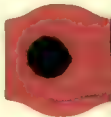
Color: N/A

WO#: 2015-83

PO# N/A

HELICOIL INSTALLED
HELICOIL P.O. 12021

- 29 MAR 2017 - Kuf





Aero Design Ltd.

9888 A Malaspina Rd., Powell River, BC
V8A 0G3, 604-483-AERO (2376)

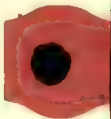
Quantity:	1	
PN:	75822-01	
Aircraft:	All	Model: All
Description:	Ring Half	
Supplier:	Aero Design Ltd.	
Color:	N/A	
WO#:	2015-83	PO# N/A

HELICOIL
HELICOIL

INSTRUCT
PG. 12021

-

29 MAR 2017 - Kuz





Aero Design Ltd.

9888 A Malaspina Rd., Powell River, BC
V8A 0G3, 604-483-AERO (2376)

Quantity: 1
PN: 75822-01
Aircraft: All
Description: Ring Half
Supplier: Aero Design Ltd.
Color: N/A
WO#: 2015-83

Model: All

PO# N/A

HELICOIL INSTALLED
HELICOIL P.O. 12021

- 29 MAR 2017 - KWB





Aero Design Ltd.

9888 A Malaspina Rd., Powell River, BC
V8A 0G3, 604-483-AERO (2376)

Quantity: 1

PN: 75833-01

Aircraft: All

Model: All

Description: Tube

Supplier: Aero Design Ltd.

Color: N/A

WO#: 2015-83

PO# N/A



Aero Design Ltd.

9888 A Malaspina Rd., Powell River, BC
V8A 0G3, 604-483-AERO (2376)

Quantity: 1

PN: 75833-01

Aircraft: All

Model: All

Description: Tube

Supplier: Aero Design Ltd.

Color: N/A

WO#: 2015-83

PO# N/A



Aero Design Ltd.

9888 A Malaspina Rd. Powell River, BC, V8A 0G3

Phone: 604-483-2376 Fax: 604-483-2372 E-mail: info@aerodesign.ca

AMF 73-04

Nomenclature: GUARD RING, THREADED No. of pieces: 4

Manufacturer: AERO DESIGN LTD

Part No.: 75801-03 / 13 Serial/Batch No.: N/A

TTSN: N/A TSO: N/A Rem.: N/A

Work Order No.: 2016-87

Remaining Tasks to be Performed: INSTALL HELICOIL ✓

Signature: [Signature]

Date: 24 JUNE 2016 Lic. No. / SCA A002

In Process



Aero Design Ltd.

9888 A Malaspina Rd. Powell River, BC, V8A 0G3

Phone: 604-483-2376 Fax: 604-483-2372 E-mail: info@aerodesign.ca

AMF 73-04

In Process

Remarks

HELICOILS INSTALLED

29 MAR 2017

KWR

HELICOIL P.O. 12021



Aero Design Ltd.

9888 A Malaspina Rd. Powell River, BC, V8A 0G3

Phone: 604-483-2376 Fax: 604-483-2372 E-mail: info@aerodesign.ca

AMF 73-04

Nomenclature: GUARD RING, THRU No. of pieces: 4

Manufacturer: AERO DESIGN LTD

Part No.: 75821-01 Serial No.: N/A

TTSN: N/A TSO: N/A Rem.: N/A

Work Order No.: 2016-87

Remaining Tasks to be Performed: NONE

Signature: [Signature]

Date: 24 JUNE 2016 Lic. No. / SCA AD02



Aero Design Ltd.

9888 A Malaspina Rd. Powell River, BC, V8A 0G3

Phone: 604-483-2376 Fax: 604-483-2372 E-mail: info@aerodesign.ca

AMF 73-04

Remarks

Serviceable

1. Approving Civil Aviation Authority/Country Transport Canada		2. AUTHORIZED RELEASE CERTIFICATE FORM ONE			3. Form Tracking No. 2017-130
4. Organization Name and Address Aero Design Ltd. – 9888A Malaspina Road, Powell River, BC, V8A 0G3					5. Work Order/Contract/Invoice WO 2017-53
6. Item	7. Description	8. Part Number	9. Qty.	10. Serial/Batch No.	11. Status/Work
1.	LH Rappel Bar Ass'y	75820-01	1	N/A	New
2.	RH Rappel Bar Ass'y	75820-02	1		
12. Remarks					
13a. Certifies that the items identified above were manufactured in conformity to:			14a. <input type="checkbox"/> CAR 571.10 Maintenance Release <input type="checkbox"/> Other regulation specified in block 12		
<input checked="" type="checkbox"/> Approved design data and are in condition for safe operation. <input type="checkbox"/> Non approved design data specified in block 12.			Certifies that unless otherwise specified in block 12, the work identified in block 11 and described in block 12, has been performed in compliance with the Canadian Aviation Regulations.		
13b. Signature  AD 73-04 02		13c. Approved Organization Number AMF 73-04		14b. Signature	
13d. Name Jeff Clarke - AD02		13e. Date (dd/mmm/yyyy) 30 Mar 2017		14c. Approved Organization Number	
				14d. Name	
				14e. Date (dd/mmm/yyyy)	
Installer Responsibilities					
This certificate does not constitute authority to install. Installers working in accordance with the national regulations of a country other than that specified in block 1 must ensure that their regulations recognize certifications from the country specified. Statements in blocks 13a or 14a do not constitute installation certification. In all cases, the technical record for the aircraft must contain an installation certification issued in accordance with the applicable national regulations before the aircraft may be flown.					

HEVILIFT LOGISTICS

RAPPEL BAR ASSEMBLY – 75820

General

These instructions apply to the Rappel Bar Assembly for the Bell 205/212/412. Refer to the following drawings, at the current revision, for dimensions and details:

75820, Revision 2 – Rappel Bar Assembly

Work Order: 2017-53

Complete
(initial or SCA #)

Date Open: 27 MAR 2017

Batch Qty: 1 RH / 1 LH

RH	LH	#3	#4	#5
#1	#2			
73-04	73-04	N/A	N/A	N/A
02	02			

1. Assembly

- Insert 75830-01 Tube into 75833-01 Stanchion Adapter. Ensure Tube is oriented correctly for left or right side installation. Seat Tube into Stanchion Adapter and align 3/8 holes.
- Insert 75826-01 Plug Stn. 131 Assembly into Tube. Align with mounting holes in Tube.
- Thread 33115 Stud Fitting into 3/8 hole through Stanchion Adapter into Plug Stn 131. Do not tighten Stud Fitting.
- Locate 75832-01 Retainer on Tube and secure with two AN5-6A Bolts with NAS1149F0563P Washers threaded into Plug Stn. 131.
- Hand tighten Stud Fitting and AN5 Bolts.
- Insert 75825-01 Plug Guide into Tube. Align with mounting holes near middle of tube.
- Locate 75831-01 Guide on Tube and secure with two AN5-6A Bolts with NAS1149F0563P Washers threaded into Plug Guide.
- Hand tighten Stud Fitting and AN5 Bolts.
- Insert 60624-01 Barrel Nut into 75824-01 Plug Stn. 105. Insert Plug Stn. 105 into Tube. Thread 33115 Stud Fitting into Barrel Nut. Do not tighten Stud Fitting.
- Insert 75835-01 Gate Plunger into 24704 Spring. Insert #10-32 x 3.0 Screw into Gate Plunger. Insert Plunger assembly into hole in Retainer, through tube. Fasten 75832-02 Gate Knob on end of plunger with MS21042L3 Nut. Hand tighten.
- Torque fasteners as follows:
 - #10-32 Screw: 20-25 in-lbs
 - AN5 Bolts: 100-140 in-lbs
 - Stud Fitting: 160-190 in-lbs
- Apply 75837-03 Placard to side of Tube as indicated on drawing.
- Record material PO on attached material list.

2. Inspection

To be completed by a different person than the previous steps.

- Inspect assembly for conformity to drawing.
- Check fastener torques.
- Tag completed assemblies and place in stores.

AD	AD	N/A	N/A	N/A
73-04	73-04			
01	01			

Aero Design

Parts Distribution Sheet

RA ASS'Y

Description: Rappel System Installation
(No Cargo Arm)

WO# 2017-53

[illegible]

Aero Design

Parts Distribution Sheet

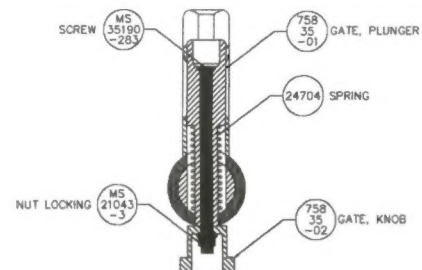
LH ASS'Y

Description: Rappel System Installation
(No Cargo Arm)

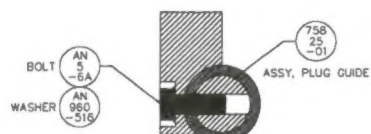
WO# 2017-53

[illegible]

REV	DESCRIPTION OF CHANGE	INITIALS	DATE
0	INITIAL ISSUE		
1	VARIOUS CHANGES	RR	30/12/08
2	ADJUSTABLE FORWARD END OF ASSEMBLY INCORPORATED	RR	14/04/09



SECTION D - D
SCALE 1 : 1

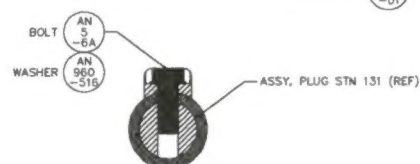


SECTION C - C
SCALE 1 : 1
TYPICAL 2 PLACES

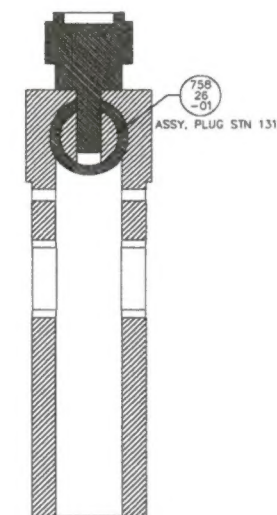
TORQUE VALUE CHART (DRY) FOR ALL FASTENERS

FASTENER DIAMETER/THREAD SIZE	RECOMMENDED STANDARD TORQUE RANGE
10 - 32	20 TO 25 IN-LB
1/4 - 28	30 TO 70 IN-LB
5/16 - 24	100 TO 140 IN-LB
3/8 - 24	160 TO 190 IN-LB

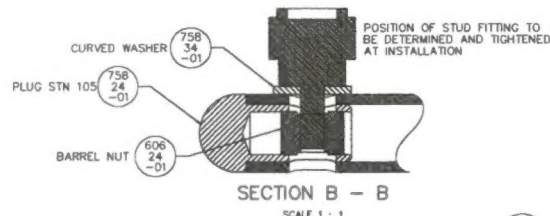
NOTE: THE ABOVE VALUES APPLY TO ANY FASTENER COMBINATION UNLESS OTHERWISE SPECIFIED. TAKE TORQUE MUST BE ADDED TO ALL TORQUE VALUES.



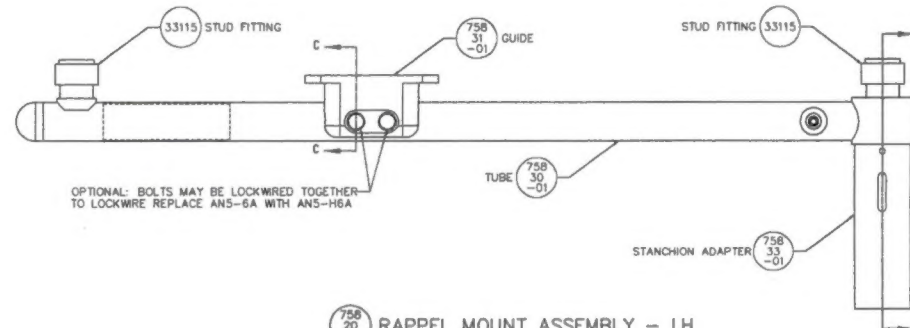
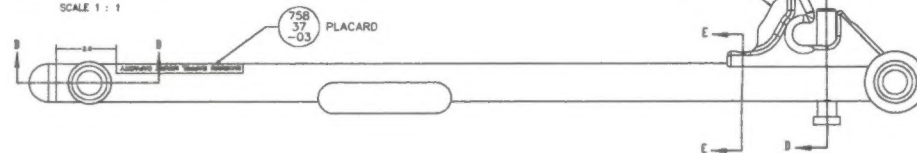
SECTION E - E
SCALE 1 : 1
TYPICAL 2 PLACES



SECTION A - A
SCALE 1 : 1



SECTION B - B
SCALE 1 : 1



758 20-01 RAPPEL MOUNT ASSEMBLY - LH
SHOWN
SCALE 1 : 2

758 20-02 RAPPEL MOUNT ASSEMBLY - RH
OPPOSITE

1	1	75837-03	PLACARD						
1	1	MS35190-283	SCREW						
1	1	24704	# 0.5 X 0.041 X 1.5 SPRING	DYNALINE					
4	4	AN960-516	WASHER						
4	4	AN5-6A	BOLT						
2	2	33115	STUD FITTING	KINEDYNE					
1	1	60624-01	BARREL NUT						
1	1	75826-01	ASSEMBLY, PLUG STN 131						
1	1	75825-01	ASSEMBLY, PLUG GUIDE						
1	1	75824-01	PLUG STN 105						
1	1	75835-02	GATE KNOB						
1	1	75835-01	GATE PLUNGER						
1	1	75834-01	CURVED WASHER						
1	1	75833-01	STANCHION ADAPTER						
1	1	75832-01	RETAINER						
1	1	75831-01	GUIDE						
1	1	75830-01	TUBE						
1	1	75820-21	RAPPEL MOUNT ASSEMBLY - RH						
1	1	75820-01	RAPPEL MOUNT ASSEMBLY - LH						
Q2	01	PART NO.	DESCRIPTION	MATERIAL/VENDOR	MATERIAL SPEC	STOCK SIZE			
QTY		LIST OF MATERIALS							
		APPROVALS		DATE		AERO DESIGN LTD.			
		DRAWN: R. RATHMELL		22/04/08		CONSULTING ENGINEERS, TRANSPORT CANADA APPROVALS, DAR 9908			
		CHECKED: E. BURGON				2013 - 39TH AVENUE N.E., CALGARY, ALBERTA, CANADA, T2E 6R7			
						tel: (403) 850-9007 fax: (403) 850-9530 www.aerodesign.co			
		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES.		TOLERANCES ON:		BELL 212, 412, 205A-1, 205B			
		DECIMALS		ANGLES		RAPPEL MOUNT PROVISION			
		X.XXX ±0.010 ±1/2°				RAPPEL MOUNT ASSEMBLY			
		X.XX ±0.03							
		X.X ±0.1							
		SCALE 1 : 2		DWG. SIZE		DWG. NO.		REV.	
		SHEET 1 OF 1		A1		75820		2	

WEIGHT AND BALANCE

ITEM DESCRIPTION	WEIGHT (LB)	LONGITUDINAL ARM (IN)	LONGITUDINAL MOMENT (LB-IN)	LATERAL ARM (IN)	LATERAL MOMENT (LB-IN)
75801					
-01 RAPPEL MOUNT PROVISION - LHS	7.83	120.4	918.6	-39.5	-301.4
-02 RAPPEL MOUNT PROVISION - RHS	7.83	120.4	918.6	39.5	301.4

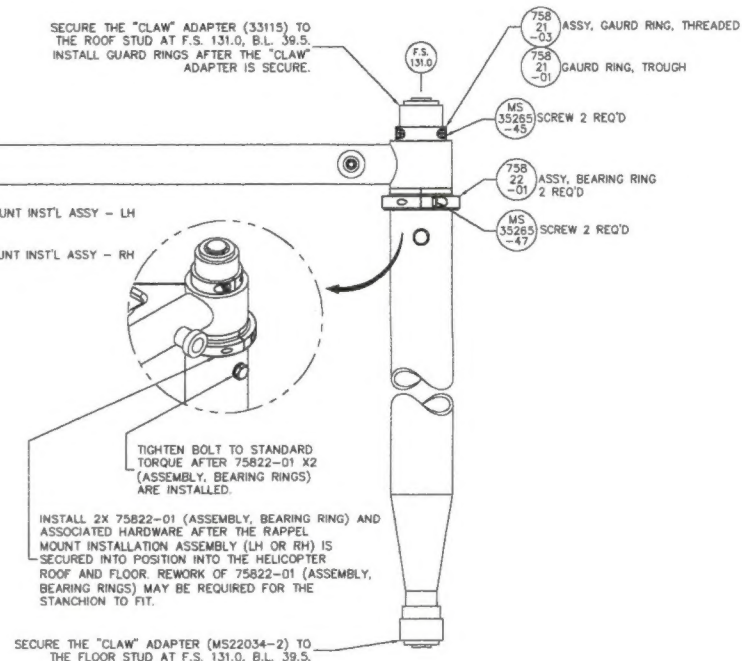
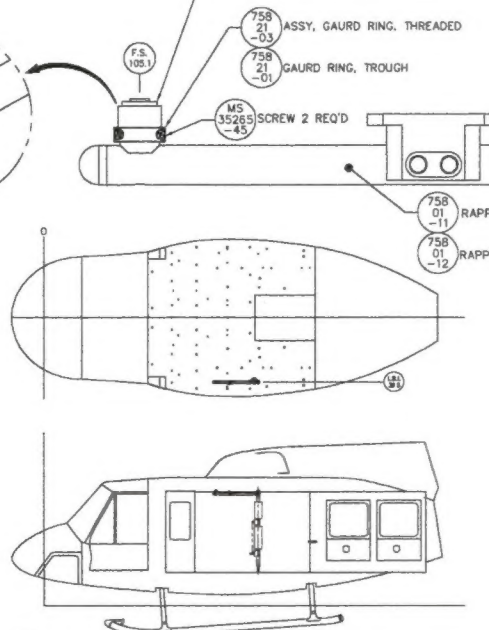
REV	DESCRIPTION OF CHANGE	INITIALS	DATE
0	INITIAL ISSUE		
1	VARIOUS CHANGES	RR	30/12/08
2	FWD CLAW FITTING ADJUSTABLE	RR	14/04/09
2A	FOR ALTERNATE SCREWS	BJC	23/03/12

GENERAL INSTALLATION NOTES:

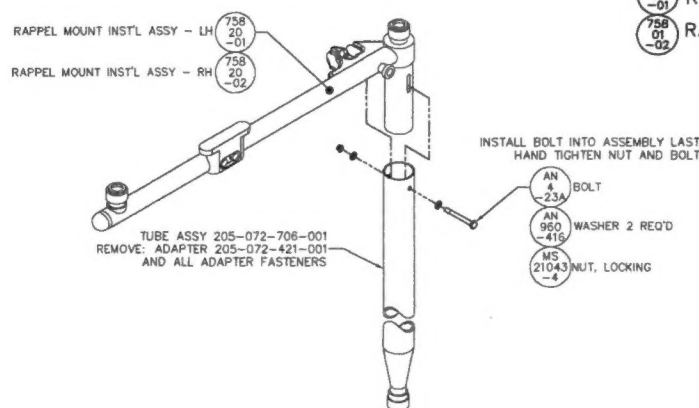
1. INSTALL 75837-01 (PLACARD) AND 75837-02 (PLACARD) IN CLEAR VIEW OF THE PILOT.
2. THE HOOK KNIFE MUST BE CARRIED BY THE RAPPEL OPERATIONS LOAD MASTER FOR IMMEDIATE ACCESS OR FIXED WITHIN THE HELICOPTER CABIN READILY ACCESSIBLE TO THE RAPPEL OPERATIONS LOAD MASTER. THE LOCATION DETAILS OF THE HOOK KNIFE MUST BE DETAILED BY THE OPERATING AGENCY'S OPERATING PROCEDURES.

ADJUST POSITION OF CLAW ADAPTER TO MATCH AIRCRAFT. TIGHTEN TO 160-190 IN*LB.
 SECURE THE CLAW ADAPTER (33115) TO THE ROOF STUD AT F.S. 105.1, B.L. 39.5. INSTALL GUARD RINGS AFTER THE CLAW ADAPTER IS SECURE.

SECURE THE "CLAW" ADAPTER (33115) TO THE ROOF STUD AT F.S. 131.0, B.L. 39.5. INSTALL GUARD RINGS AFTER THE "CLAW" ADAPTER IS SECURE.



75801-01 RAPPEL MOUNT PROVISION INST. LHS
 75801-02 RAPPEL MOUNT PROVISION INST. RHS
 SHOWN - NOT TO SCALE
 OPPOSITE



FASTENER	RECOMMENDED STANDARD TORQUE RANGE
DIAMETER/THREAD SIZE	
10 - 32	20 TO 25 IN-LB
1/4 - 28	50 TO 70 IN-LB

NOTE: THE ABOVE VALUES APPLY TO ANY FASTENER COMBINATION UNLESS OTHERWISE SPECIFIED. TARE TORQUE MUST BE ADDED TO ALL TORQUE VALUES.

QTY	DESCRIPTION
1	205-070-706-001 TUBE ASSY (BELL HELICOPTERS)
1	MS21043-4 LOCKNUT
2	AN960-416 WASHER
1	AN4-23A BOLT
1	75822-01 RAPPEL MOUNT ASSEMBLY - RH
1	75822-01 RAPPEL MOUNT ASSEMBLY - LH
1	75801-12 RAPPEL MOUNT INSTALLATION ASSEMBLY - RH
1	75801-11 RAPPEL MOUNT INSTALLATION ASSEMBLY - LH
2	75822-01 ASSEMBLY, BEARING RING
1	75837-02 PLACARD
1	75837-01 PLACARD
2	75822-01 ASSEMBLY, GAUD RING, THREADED
2	75822-01 GAUD RING, TROUGH
4	MS35265-45 SCREW ACCEPTABLE ALTERNATIVE: SOCKET HEAD CAP SCREW #8-32 X 0.5 LONG
2	MS35265-47 SCREW ACCEPTABLE ALTERNATIVE: SOCKET HEAD CAP SCREW #8-32 X 0.75 LONG
1	75801-02 RAPPEL MOUNT PROVISION INST. RHS
1	75801-01 RAPPEL MOUNT PROVISION INST. LHS
-12	-11 -02 -01 PART NO. DESCRIPTION

LIST OF MATERIALS

AERO DESIGN LTD.

CONSULTING ENGINEERS, TRANSPORT CANADA APPROVALS, DAR 290M
 2013 - 39TH AVENUE N.E., CALGARY, ALBERTA, CANADA, T2E 6R7
 TEL: (403) 266-8087 FAX: (403) 266-8083 www.aerodesign.ca

BELL 212, 412, 205A-1, 205B
 RAPPEL MOUNT PROVISION
 INSTALLATION

SCALE: NOTED DWG SIZE: DWG NO: 75801 REV: 2 DWG: A

SHEET 1 OF 1



Aero Design Ltd.

9888 A Malaspina Rd., Powell River, BC
V8A 0G3, 604-483-AERO (2376)

Quantity: 1
PN: 33115
Aircraft: All
Description: Kinedyne 12 Jaw Claw Fitting
Supplier: Traction
Color: N/A
WO#: N/A

PO# 15062

Model: All

Model: All

Quantity: 1
PN: 33115
Aircraft: All
Description: Kinedyne 12 Jaw Claw Fitting
Supplier: Traction
Color: N/A
WO#: N/A

PO# 15062



Aero Design Ltd.

9888 A Malaspina Rd., Powell River, BC
V8A 0G3, 604-483-AERO (2376)

Quantity: 1
PN: 33115
Aircraft: All
Description: Kinedyne 12 Jaw Claw Fitting
Supplier: Traction
Color: N/A
WO#: N/A

Model: All

PO# 15062



Aero Design Ltd.

9888 A Malaspina Rd., Powell River, BC
V8A 0G3, 604-483-AERO (2376)

Quantity: 1
PN: 33115
Aircraft: All
Description: Kinedyne 12 Jaw Claw Fitting
Supplier: Traction
Color: N/A
WO#: N/A

Model: All

PO# 15062